WHAT IS CLAIMED IS:

1. An acoustic effect apparatus comprising

filter means for picking out components corresponding to the double overtone regions of a bass musical instrument such as a base or a bass drum from an audio signal which is input from an input terminal;

and distortion applying means receiving the components corresponding to the double overtone regions which are picked out by the filter means and applying a non-linear distortion to the components corresponding to the double overtone regions.

2. An acoustic effect apparatus according to Claim 1 in which the filter means has a cut-off response on the bass side which is gentle enough to allow a fundamental tone component of the bass musical instrument to be delivered even though subject to a level reduction.

3. An acoustic effect apparatus according to Claim 2 in which the cut-off response on the bass side of the filter means is chosen to be on the order of +12dB/OCT.

4. An acoustic effect apparatus according to Claim 1 in which the filter means has a cut-off response on the higher pitch side which is steeper than the cut-off response on the bass side.

5. An acoustic effect apparatus according to Claim 4 in which the cut-off response on the higher pitch side of the filter means is on the order of –24dB/OCT or steeper.

6. An acoustic effect apparatus according to Claim 1 in which the filter means has a cut-off frequency on the bass side which is chosen in a range of 50～300Hz and has a cut-off frequency on the higher pitch side which is chosen to be in a range of 200～450Hz.

7. An acoustic effect apparatus according to Claim 6 in which the

filter means has a cut-off frequency on the bass side which is substantially equal to 200Hz and a cut-off frequency on the higher pitch side which is substantially equal to 400Hz.

8. An acoustic effect apparatus according to one of Claims 1 to 7 in which the filter means comprises a high pass filter having a cut-off frequency which is equal to the cut-off frequency on the bass side, and a low pass filter having a cut-off frequency which is equal to the cut-off frequency on the higher pitch side.

9. An acoustic effect apparatus according to Claim 8 in which the high pass filter has a small peak formed on a shoulder located adjacent to the cut-off frequency of its amplitude-frequency characteristic curve.

10. An acoustic effect device according to one of Claims 1 to 7 in which the filter means comprises a bandpass filter.

11. An acoustic effect device according to one of Claims 1 to 7, further comprising means for changing the cut-off frequency of the filter means.

12. An acoustic effect apparatus according to Claim 1 in which the distortion applying means has an input-output response which is a non-linear response which has no point symmetry with respect to the center of an input amplitude.

13. An acoustic effect apparatus according to Claim 12 in which the non-linear response is S-shaped with respect to a rectilinear line which represents a linear input-output response and is defined by a curve which has no point symmetry with respect to a reference point of an input and an output.

14. An acoustic effect apparatus according to Claim 13 in which the distortion applying means comprises a transistor having a collector, to which an output from the filter means is fed and an emitter which delivers an output

signal, and means for setting up a base current of the transistor, the distortion applying means utilizing a non-linear response occurring adjacent to zero point of the collector current-collector-emitter voltage response of the transistor.

15. An acoustic effect apparatus comprising

a narrow-bandpass filter for picking out a double overtone component of a desired fundamental tone of a bass musical instrument from an audio signal which is input from an input terminal;

and distortion applying means for receiving the double overtone component which is picked out by the narrow-bandpass filter for applying a non-linear distortion to the double overtone component.

16. An acoustic effect apparatus according to Claim 15 in which the narrow-bandpass filter has a cut-off response on the bass side which is chosen on the order of +12dB/OCT.

17. An acoustic effect apparatus according to Claim 15 in which the distortion applying means has an input-output response which is S-shaped with respect to a rectilinear line representing a linear response and which is defined by a curve having no point symmetry with respect to a reference point of an input and an output.

18. An acoustic effect apparatus comprising

a high pass filter for picking out a component corresponding a double or higher overtone of a bass musical instrument from an audio signal which is input from an input terminal;

and distortion applying means for receiving the component corresponding to the double or higher overtone which is picked out by the high pass filter and for applying a non-linear distortion to the component corresponding to the double or higher overtone;

the distortion applying means having an input-output response which is a non-linear response having no point symmetry with respect to the center of an input amplitude.

19. An acoustic effect apparatus according to Claim 18 in which the non-linear response is an input-output response which is S-shaped with respect to a rectilinear line representing a linear response and which is defined by a curve having no point symmetry with respect to a reference point of an input and an output.

20. An acoustic effect apparatus according to Claim 18 in which the high pass filter has a cut-off response which is substantially equal to +12dB/OCT and has a cut-off frequency of about 200Hz.

21. An acoustic effect apparatus according to Claim 18 in which the high pass filter has a small peak formed on a shoulder located adjacent to a cut-off frequency of its amplitude-frequency characteristic curve.

22. An acoustic effect apparatus according to one of Claims 1 to 7 and 12 to 21, further comprising a summer for summing an output signal from the distortion applying means and the input audio signal from the input terminal for delivery to an output terminal.

23. An acoustic effect apparatus according to Claim 22, further comprising a low pass filter which is fed with an output signal from the distortion applying means and which provides a gentle attenuation of components substantially equal to or greater than 200Hz before feeding the summer.

24. An acoustic effect method comprising

a step of picking out a component corresponding to a double overtone region of a bass musical instrument such as a base or a bass drum from an input audio signal from an input terminal by means of filter means;

and a step of applying a non-linear distortion to the component corresponding to the double overtone region which is picked out by means of distortion applying means.

25. An acoustic effect method according to Claim 24, further comprising a step of summing the double overtone region component to which the non-linear distortion is applied and the input audio signal together for delivery.

26. An acoustic effect method according to Claim 24 or 25 in which the filter means has a cut-off frequency on the bass side which is substantially equal to 200Hz and has a cut-off response which is substantially equal to +12dB/OCT, a cut-off frequency on the higher pitch side which is substantially equal to 400Hz and a cut-off response which is steeper than substantially –24dB/OCT.

27. An acoustic effect method according to Claim 26 in which the distortion applying means has an input-output response which is a non-linear response having no point symmetry with respect to the center of an input amplitude.

28. A recorded medium having a program recorded thereon for execution by a computer of an acoustic effect apparatus, the program including

a processing for downloading audio data;

a filter processing for picking out a component data corresponding to double overtone region of a bass musical instrument such as a base or a bass drum from the downloaded audio data;

and a distortion applying processing which applies a non-linear distortion to the component data corresponding to the double overtone region which is picked out.

29. A recorded medium according to Claim 28 in which the filter processing is a processing with a cut-off response at +12dB/OCT at a cut-off frequency on the bass side which is anywhere in a range of 50～300Hz and with a cut-off response at –24dB/OCT or steeper at a cut-off frequency on the higher pitch side which is anywhere in a range of 200～450Hz.

30. A recorded medium according to Claim 29 in which the filter processing has a cut-off frequency on the bass side which is substantially equal to 200Hz and a cut-off frequency on the higher pitch side which is substantially equal to 400Hz.

31. A recorded medium according to one of Claims 28 to 30 in which the filter processing comprises a high pass filter processing with a cut-off frequency and a cut-off response on the bass side and a low pass filter processing with a cut-off frequency and a cut-off response on the higher pitch side.

32. A recorded medium according to Claim 28 in which the distortion applying processing is a processing having an input-output response which is a non-linear response having no point symmetry with respect to the center of an input amplitude.

33. A recorded medium according to one of Claims 28, 29 and 32 in which the distortion applying processing is a processing in which a reference is made to a table having non-linear input-output responses recorded therein in terms of the component data corresponding to the double overtone region which is picked out to deliver output data.

34. A recorded medium according to one of Claims 28, 29 and 32 in which the distortion applying processing is a processing which calculates a non-linear function using a variable defined by the component data corresponding to the double overtone region which is picked out to deliver

output data.

35. A recorded medium according to one of Claims 28, 29 and 32 in which the program includes a program which causes the computer to execute a low pass filter processing which causes the level to be gradually reduced for the component data corresponding to the double overtone region to which the non-linear distortion is added as the component data goes toward the higher pitch.